A REPORT ON THE TWO DAY LECTURE WORKSHOP ON “PROGRESSES & CHALLENGES IN MEDICAL BIOTECHNOLOGY”

Venue: Christ University, Bangalore

Date: February 15 & 16, 2013.

A two day lecture workshop on “Progress & Challenges in Medical Biotechnology was organized by Christ University in collaboration with the three Academies – Indian Academy of Sciences, Bangalore, Indian National Science Academy, New Delhi and The National Academy of Sciences, Allahabad. The event started at 9.30 am on Feb 15 with a short inaugural ceremony. The Presidential address was given by the Vice Chancellor of Christ University, Fr. Thomas C Mathew. The event was inaugurated by Prof. V. Nagaraja, the Convenor of the programme.

- SESSION 1 : Prof. Nagaraja V,
  Dept. of Microbiology & Cell Biology, IISc

  Topic: “STRATEGIES TO COUNTER RESURGENT TUBERCULOSIS”

  Being the most researched field in this era, Prof. Nagaraj chose the apt topic for his talk. Starting with how Mycobacterium tuberculosis bacterium has now become multi-drug resistant, he went on to talk about the various escape strategies deployed by this bacterium in the human host. Present day Mycobacterium tuberculosis, due to environmental factors & due to its adjusting nature, has developed various mutations in its genome, thus making it difficult to combat the bacterium. He concluded with an encouraging note, inspiring all of us to go in this direction to find solutions to combat this disease.

- SESSION 2 : Prof. V. Ravi,
  Registrar & HOD, Dept. of Neurovirology, NIMHANS

  Topic: “CHALLENGES IN THE DEVELOPMENT OF INDIGENOUS DIAGNOSTICS”

  An amazing orator & a very knowledgeable person, Dr. V. Ravi spoke on the need to develop indigenous diagnostics & the various challenges faced by virologists. The need to develop viral diagnostics arises due to diseases like HSE, Rabies, Polio, HIV, etc. But there are several barriers in developing these kits, which was reflected upon by Dr. Ravi. He concluded the talk by quoting examples about immunological assays & the advantages of such diagnostic kits over the other contemporary techniques.
• SESSION 3 : Prof. Maneesha Inamdar,
Laboratory of Stem Cell Biology % Vascular Biology, JNCASR,
Bangalore

Topic: “PROMISES, PROGRESSES & CHALLENGES OF STEM CELL THERAPY”

STEM CELLS, being a very interesting topic, all of us were drawn towards Prof. Inamdar who brought to light, a different perspective towards using stem cells to make new tissues & organs, rather than just using them for therapies. She opened her talk by giving the basics about stem cells and their historical uses by Shiny Yamanaka & John Gudon. On a concluding note, she encouraged astudents to think along the lines of stem cells & regenerative medicine.

• SESSION 4 : Prof. Umesh Varshney,
Dept. of Microbiology & Cell Biology,
IISc, Bangalore

Topic: “NEW ANTIBIOTICS TARGETTING TRANSLATION”

Prof. Umesh Varshney’s talk was an elementary talk that was based on the principle of protein synthesis & the design of antibiotics. He initiated the lecture with the theory & principles of translation. He also spoke about how mutations in ribosome binding could lead to antibiotic resistance. Continuing with these concepts of translation and antibiotic resistance, his talk concluded with the pressing need to develop futuristic vaccines that can overcome all the challenges.

• SESSION 5 : Prof. Dipshika Chakravotty,
Dept. of Microbiology & Cell Biology, IISc Bangalore

Topic: “GUT BACTERIA DETERMINES GOOD & BAD HEALTH”

Nothing is extra-ordinary; every simple thing which is ordinary can be made extra-ordinary when the person makes it interesting for the listener. The same thing happened in this talk – despite being a simple topic, Prof. Dipshika made this as interesting as possible. This talk focussed on a simple concept of gut bacteria & went on to tell how the microbiota influences the health of the individual. The diversity and constitution of these micro-organisms play an integral part in determining the health of the individual & in strengthening the immune system. The talk concluded with an informative note, warning us to maintain the diversity of gut flora in our body & to not tamper with the mucosal membrane, so as to ensure good health at all times.
SESSION 6: Prof. P. N. Rangarajan, Dept. of Biochemistry, IISc, Bangalore

Topic: “TRADITIONAL, MODERN & FUTURISTIC VACCINES”

Using a very attractive comment, Prof. Rangarajan opened the talk with a statement: “a vaccine is a non-disease mimic of a pathogen”. His talk focused on the traditional, modern & futuristic vaccines. He first spoke about the traditional vaccines & then moved on to mentioning the landmark events in the history of vaccines – the eradication of Small Pox, Polio & Linderpest from the face of earth. With this, he also talked about the necessity to control zoonotic diseases & the use of futuristic vaccines to compensate the ineffectiveness of traditional vaccines. By mentioning some key ideas like DNA vaccines, edible/ oral vaccines, etc., Prof. Rangarajan concluded his talk by mentioning the importance of adjuvants – the essential component of vaccines that non-specifically stimulate the immune system.

SESSION 7: Prof. Uday Kumar Ranga,
Dept. of Molecular Biology & Genetics, JNCASR, Bangalore

Topic: “HIV SAYS AGAIN: IN FAILURE, I SEE MY SUCCESS”

Prof. Udaya Kumar’s talk was based upon the evolution of HIV & the methods to combat AIDS. HIV, being a retrovirus, first evolved in the African monkeys and as a zoonotic event, got transmitted to the human race. Prof. Ranga went on to talk about the details of the virus, its mode of infection and the types of HIV in the world. Thus, the talk covered the evolution of this virus & also mentioned how difficult it is to detect the virus & treat AIDS.

SESSION 8: Prof. Ashok. M. Raichur,
Dept. of Materials Engineering, IISc Bangalore

Topic: “MULTI - LAYERED CAPSULES AS DRUG DELIVERY SYSTEMS”

Any invention that cannot target its area, will be essentially of no use. Hence, no matter how wonderful the discovery of any drug is, unless it addresses the target cells, it fails to fulfil its purpose of invention. Addressing this topic, Prof. Ashok’s talk focussed on the various multi – layered drug delivery systems. Using various coated capsules, drugs like ‘Doxorubicin’ have been developed to combat Cancer. This talk concluded with the highlights of achievements using this method & Prof. Ashok also encouraged us to think along the lines of such an upcoming trend in the field of Medical Biotechnology.
Department of Biotechnology

In association with

Science Academies’ two day Lecture Workshop on
“Progress and Challenges in Medical Biotechnology”

PROGRAMME SCHEDULE

Day 1: Friday, February 15, 2013

9:45 am  Inauguration
         Invocation by Sharanya and Anusha

Welcome Address : Dr Suma S
                  Assistant Professor
                  Department of Biotechnology
                  Christ University, Bangalore

Presidential Address : Dr (Fr) Thomas C Mathew
                      Vice Chancellor
                      Christ University, Bangalore

Inaugural Address : Professor Nagaraja V
                   Chairman
                   Department of Microbiology and Cell Biology
                   Indian Institute of Science, Bangalore
**Vote of Thanks**

: Mrs Vasantha V L  
Assistant Professor  
Department of Biotechnology  
Christ University, Bangalore  

## Technical Sessions

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<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker</th>
<th>Title</th>
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<tbody>
<tr>
<td>10:00 am</td>
<td>Session I</td>
<td>Professor Nagaraja V</td>
<td>Strategies to counter resurgent tuberculosis</td>
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<td>11:00 am</td>
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<td>Tea break</td>
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<tr>
<td>11:15 am</td>
<td>Session II</td>
<td>Professor Ravi V</td>
<td>Challenges in the development of indigenous diagnostics</td>
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<td>12:15 am</td>
<td>Session III</td>
<td>Professor Maneesha Inamdar</td>
<td>Promises, progress and challenges of stem cell therapy</td>
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<td>1:15 pm – 2.15 pm</td>
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<td>Lunch break</td>
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<td>2:15 pm</td>
<td>Session IV</td>
<td>Professor Umesh Varshney</td>
<td>New antibiotics targeting translation</td>
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3:15 pm
Speaker: Session V
Title: Gut bacteria determines good and bad health

4:15
: Tea

Day 2: Saturday, February 16, 2013

10:00 am
Speaker: Session VI
Title: Traditional, modern and futuristic vaccines

11:00 am
: Tea break

11:30 am
Speaker: Session VII
Title: HIV says again: In failure I see my success

12:30 pm – 2.00 pm
: Lunch break

2.00-3.00 pm
Speaker: Session VIII
Title: Multi-layered capsules as drug delivery systems

3.00
: Valedictory function

3.30 pm
: Tea
PARTICIPANTS OF THE TWO DAY LECTURE WORKSHOP ON “PROGRESSES & CHALLENGES IN MEDICAL BIOTECHNOLOGY

Venue: Christ University, Bangalore

Date: February 15 & 16, 2013.

Total participants approved by IAS: 125
No: of participants: 124
No: of colleges: 11

(Students: 101; Teachers: 12; Resource Persons: 8; Supporting Staff: 3)

List of colleges participated

1. Mount Carmel College
2. Vijaya College
3. NMKRV
4. Adarsha College
5. T. John College
6. Vijaya College (BHS)
7. Indian Academy Degree College
8. Garden City College
9. Acharya B School
10. MES College
11. Christ University

Coordinator

[Signature]

[Date] 12/3/13